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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,283	09/29/2003	Yoshiharu Hasegawa	Fukuda Case 43	3119
23474	7590	06/15/2005	EXAMINER	
FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1699			MORILLO, JANEL COMBS	
			ART UNIT	PAPER NUMBER
			1742	
DATE MAILED: 06/15/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,283

Applicant(s)

HASEGAWA ET AL.

Examiner

Janelle Combs-Morillo

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by JP2002-180171A (JP' 171).

JP' 171 teaches an aluminum alloy for automobile radiator piping (abstract) consisting of (in weight%): 0.3-1.5% Mn, $\leq 0.2\%$ Cu, 0.06-0.30% Ti, 0.01-0.20% Fe, and 0.01-0.20% Si, balance aluminum (abstract), overlaps or touches the boundary of the presently claimed alloying ranges. Example #41 consists of: 0.15% Si, 0.5% Fe, 0.8% Mn, 0.15% Cu, 0.17% Ti (see Table 5), and wherein said alloy exhibits a crystal grain size of 50 μm (see Table 6), as well as good formability (see %elongation in Table 6) and good corrosion resistance (see corrosion results in Table 6).

JP' 171 does not mention Ti based compounds with a grain size of 10 μm do not exist as an aggregate of two or more serial compounds in a single crystal grain (instant claim 1). However, because JP' 171 teaches an example within the presently claimed alloying ranges, as well as a substantially similar method of extruding said alloy into a piping material and further annealing, then substantially the same microstructural characteristics, such as aggregates of Ti compounds, are inherently expected to occur. Therefore it is held that JP' 171 anticipates the presently claimed invention.

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Concerning instant claim 2, JP' 171 teaches 0.4% max. Mg can be present in said alloy (see [0019]).

Concerning instant claim 3, JP' 171 teaches 0.01-0.2% Cr or Zr can be present in said alloy (see [0020]).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sircar (US 5,976,278).

Sircar teaches an aluminum alloy with improved combinations of corrosion resistance and formability (abstract), wherein said alloy comprises (in weight%): $\leq 0.03\%$ Cu, $0.1-1.2\%$ Mn, $0.03-0.35\%$ Ti, up to 1% Mg, $\leq 0.01\%$ Ni, $0.05-1\%$ Zn, $\leq 0.3\%$ Zr, $\leq 0.5\%$ Fe, $\leq 0.5\%$ Si, $\leq 0.2\%$ Cr (column 4 lines 27-33), which substantially overlaps the presently claimed alloying ranges in claims 1-4. Sircar teaches said alloy can be extruded into a tube (column 7 lines 10-17), and is especially useful for heat exchanger tubing (column 7 lines 26-28). Though Sircar mentions a finer grain size can be achieved (column 6 lines 4—42), Sircar does not mention the average grain size or the degree the Ti based compounds are aggregated. However, because Sircar teaches a substantially overlapping alloy composition, as well as a substantially similar method of working said alloy into a tube, then substantially the same microstructural features

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(such as average grain size and the degree of Ti compound aggregates) are also expected to occur. Therefore, it is held that Sircar has created a prima facie case of obviousness of the presently claimed invention.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP'171.

JP'171 teaches ranges of Mn, Cu, Ti, Fe, and Si that overlap or touch the boundary of the presently claimed ranges (see paragraphs above). JP'171 teaches said alloy exhibits a grain size of typically 100 μm (see Tables). JP'171 does not mention the degree the Ti based compounds are aggregated. However, because JP'171 teaches a substantially overlapping alloy composition, as well as a substantially similar method of working said alloy into a tube, then substantially the same microstructural features (such as average grain size and the degree of Ti compound aggregates) are also expected to occur. Therefore, it is held that JP'171 has created a prima facie case of obviousness of the presently claimed invention.

6. Claims 1-4 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 04-285139A (JP'139A).

JP'139 teaches an aluminum alloy pipe material suitable for radiators, said alloy containing (in weight%): 0.3-1.5% Mn, 0.1-0.6% Cu, 0.06-0.35% Ti, 0.1-0.35% Fe, 0.05-0.25% Si, up to 0.4% Mg, balance aluminum (abstract), which overlaps the presently claimed alloying ranges. Additionally, JP'139 teaches that the grain size is $\leq 100 \mu\text{m}$ (see Table 2). JP'139 does not mention the degree the Ti based compounds are aggregated. However, because JP'139 teaches a substantially overlapping alloy composition, as well as a forming said alloy into a tube for heat exchangers, then substantially the same microstructural features (such as average grain

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size and the degree of Ti compound aggregates) are also expected to occur. Therefore, it is held that JP'171 has created a prima facie case of obviousness of the presently claimed invention.

Response to Amendment/Arguments

7. In the response filed on March 21, 2005, applicant amended claims 1-4, added new claims 6-10, and submitted various arguments traversing the rejections of record.

8. Applicant's argument that the present invention is allowable over the prior art of record because JP'171 does not teach an example within the presently claimed range has not been found persuasive. The examiner acknowledges that Ex. 48 of JP'171 has a Cu range that falls outside the instant limit, however, Ex. 41 of JP'171 teaches an amount of Mn, Cu, Ti, Fe, and Si that fall within the instant ranges.

9. Applicant's argument that the present invention is allowable over the prior art of record because the prior art does not teach limiting the Fe and Si contents to the instant ranges so that the alloy has improved crevice corrosion resistance, has not been found persuasive. With respect to overcoming the prima facie case of obviousness set forth above, applicant has not clearly shown unexpected results or criticality of the presently claimed range.


10. Applicant's argument that the present invention is allowable over the prior art of record because the piping material of the invention cannot be obtained by a method of hot rolling and reducing as taught by Sircar has not been found persuasive. Sircar teaches that a conventional process of casting, homogenizing, cooling, hot deforming by extrusion into a desired shape, and further cold working by drawing, bending, etc. (column 7 lines 10-17) can be used to form the Al-Mn alloy into an extruded pipe. Applicant has not clearly shown specific unexpected results with respect to the prior art of record.


Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCM 
June 10, 2005


GEORGE WYSZOMIERSKI
PRIMARY EXAMINER
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